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of Conchology

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 OF  
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CONTENTS.

ORIGINAL COMMUNICATIONS: PAGE.

A List of the Shells taken at Guernsey, Sark, and Herm.—A. H. Cooke and H. M. Gwatkin, M.A. ... ..	321
Helix Pisana—G. Sherriff Tye... ..	333
Occurrence of <i>Gadinia reticulata</i> in South Eastern Polynesia—Andrew Garrett ... ..	335
Occurrence of <i>Crepidula aculeata</i> in the Marquesas Islands—Andrew Garrett ... ..	335
Alliance of the genera <i>Ennea</i> and <i>Streptaxis</i> .—J. S. Gibbons, M.B. ... ..	336
Notes on the genus <i>Partula</i> .—C. P. Gloyne ... ..	337
On certain species of <i>Littorina</i> .—J. S. Gibbons ... ..	339
Abnormal form of <i>Cylindrella Raveni</i> .—J. S. Gibbons ... ..	340
Descriptions of two new Gastropods.—W. Doherty ... ..	341
Description of a new Pupa.—C. R. Judge ... ..	343
Remarks on a dentate variety of <i>Conulus fulvus</i> , <i>Drap.</i> —W. Doherty ... ..	344
Descriptions of new species of <i>Achatina</i> .—E. A. Smith, F.L.S. ... ..	346

DESCRIPTIONS OF NEW SPECIES:

<i>Somatogyrus trothis</i> , <i>Doherty</i> ... ..	341
<i>Cionella Morseana</i> , <i>Doherty</i> ... ..	342
Pupa <i>Cincinnatiensis</i> , <i>Judge</i> ... ..	343
<i>Achatina albopicta</i> , <i>Smith</i> ... ..	346
<i>zebroides</i> , <i>Smith</i> ... ..	347
<i>dimidiata</i> , <i>Smith</i> ... ..	348
<i>bisculpta</i> , <i>Smith</i> ... ..	349
<i>simplex</i> , <i>Smith</i> ... ..	350
<i>Transvaalensis</i> , <i>Smith</i> ... ..	351

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OLIVA				marmoreus ... ..	...	0	6
inflata, Red Sea ... ..	...	0	6	magus ... ..	...	0	4
gibbosa, Ind. Seas ... ..	...	0	6	miliaris, Red Sea ... ..	...	0	3
maura, do. ... ..	...	0	3	millepunctatus, Ind. Seas ... ..	...	0	4
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minor, do. ... ..	...	0	6	striatus, Ind. Seas ... ..	...	0	9
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				lentiginosus, do. ... ..	...	0	9
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*rivollii*, Ceylon ... .. 1 0

*intorta*, Philippines ... .. 1 0

*Aphrodite* do. ... .. 1 0

*Yulei*, Australia ... .. 1 0

*arrosa*, Oregon ... .. 1 0

*leucostyla*, Mauritius ... .. 0 6

*Ludersii*, Philippines ... .. 0 6

*Xiphium* do. ... .. 0 6

*coluber*, Philippines ... .. 0 6

*Coxi*, Australia ... .. 1 6

*fringilla*, Admiralty Islands... 0 6

*hydrophana*, Philippines ... 1 0

*mendana*, Mauritius ... .. 0 4

*ambrosia*, Philippines... .. 0 6

*Lombeii*, do. ... .. 0 6

*fibula*, do. ... .. 0 6

*infumata*, California. ... .. 3 0

*stylodon*, Mauritius. ... .. 0 3

*implicata*, Mauritius. ... .. 0 3

*Nordmanni*, Europe. ... .. 1 0

*compacta*, Madeira. ... .. 0 2

*Rawsoni*, Mauritius. ... .. 0 3



A LIST OF SHELLS TAKEN AT GUERNSEY, SARK,  
AND HERM,\* IN SEPTEMBER, 1877.

By A. H. COOKE, of King's College,

And H. M. GWATKIN, M.A., of St. John's College, Cambridge.

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[NOTE.—Where the particular island is not specified, Guernsey is always referred to.]

---

PISIDIUM NITIDUM, *Jenyns*. Wet ground in a meadow near Cobo ; common.

PISIDIUM ROSEUM, *Scho'tz*. In a small pond by the roadside, near the harbour at Sark ; not common.

HYDROBIA VENTROSA, *Mont.*, var. ELONGATA. Arnold's pond ; very abundant and fine.

PLANORBIS SPIROBIS, *L.* Dry ponds near Mt. Crevel Tower, and ditches near Cobo ; common. Very abundant near Ivy Castle.

PLANORBIS VORTEX, *L.* Only a few specimens in small ditches at Cobo.

LIMNÆA PEREGRINA, *Müll.*, var. SUBMARITIMA. Generally distributed in ponds and ditches near the sea shore, at Guernsey only ; always dwarfed. It does not seem to occur at Sark.

LIMNÆA PALUSTRIS, *Müll.* Small streams and ditches throughout Guernsey, *e.g.*, Fermain Bay, The Vale, &c. Not very common.

LIMNÆA TRUNCATULA, *Müll.* Ditches at Cobo ; rare.

LIMNÆA GLABRA, *Müll.* In ditches near Ivy Castle ; common.

---

\* Our search at Sark and Herm only lasted about three days at each.

ANCYLUS FLUVIATILIS, Müll. Very common in small streams in the south of Guernsey and at the Port du Moulin, Sark.

ANCYLUS LACUSTRIS, L. Near Ivy Castle, Guernsey.

ARION ATER, L. Wet and damp places everywhere, especially in the valleys S. of Guernsey.

ARION HORTENSIS, Fér. Common under stones in Guernsey, Herm and Sark.

LIMAX MARGINATUS, Müll. Very common under large stones, generally distributed.

LIMAX FLAVUS, L. With the last, but not so common, and only in Guernsey and Sark.

LIMAX AGRESTIS, L. In most places; very common.

LIMAX MAXIMUS, L. Guernsey and Sark only; not common; with *L. marginatus* and *flavus*.

SUCCINEA PUTRIS, L. Moist places in Guernsey and Sark; very abundant.

VITRINA PELLUCIDA, Müll. Ditches at Vazon Bay; not at all common.

ZONITES CELLARIUS, Müll. Shady and damp places everywhere, abundant and very large. The finest were from Fort George, at the foot of the walls, and at Vazon Bay.

ZONITES ALLIARIUS, Müll. Under stones near the sea, on high downs as well as on flat ground in all the islands.

*Var. VIRIDULA.* Herm and south coast of Guernsey.

ZONITES NITIDUS, Müll. Wet ground near Cobo, with *Cochlicopa lubrica*, *Carychium minimum*, and *Vertigo antivertigo*; common.

HELIX ASPERSA, Müll. Common everywhere except in Sark.

*Var. TENUIS.* In Sark this variety, which is very common, seems to take the place of the type; it is particularly

abundant among stones on the downs, also at the south end of Guernsey. The descent from the type may, however, be clearly traced by specimens of various degrees of thinness.

Another variety occurs at Herm, of the same texture as the type, but dwarfed.

HELIX NEMORALIS, *L.* Common in all the islands, generally among stones near the sea.

*Var.* HORTENSIS, *Müll.* Pleinmont, Ivy Castle.

HELIX HISPIDA, *L.* Everywhere common. A curious variety occurred at Herm, in which the suture of the last whorl was deeply channelled near the mouth.

*Var.* SUBGLOBOSA. Fermain Bay and the woods above.

HELIX REVELATA, *Michaud.* Downs on the S. Coast of Sark and Guernsey, also at the E. of Guernsey, and at Herm, local but abundant in suitable places; always near the sea. The last two localities are, we believe, new.

HELIX PISANA, *Müll.* Vazon Bay, Guernsey. Abundant and decidedly large.

HELIX VIRGATA, *Da Costa.* Most abundant on sandy flats to the N. of Guernsey and at Herm. At Sark only on the hill just above the harbour.

HELIX CAPERATA, *Mont.* Generally distributed; most common on the downs to the S. of Guernsey.

HELIX ROTUNDATA, *Müll.* All the islands; common under very large stones.

HELIX PULCHELLA, *Müll.* Guernsey only; local and rather scarce; most plentiful in St. John's churchyard; also in wet ground at Cobo and Vazon Bay.

BULIMUS ACUTUS, *Müll.* In the same localities with *Helix virgata* and equally abundant.



PUPA UMBILICATA, *Drap.* Common in all the islands, close to the sea as well as inland.

PUPA MARGINATA, *Drap.* Under stones at Vazon Bay ; rare.

VERTIGO ANTIVERTIGO, *Drap.* Marshy ground at Cobo and Vazon Bay, with *Carychium minimum*, common ; also in wet hollows on the cliffs above Moulin Huet. [Jeffreys has the obvious misprint, B. 0.6 for 0.06].

BALEA PERVERSA, *L.* Walls south of St. Peter's Port only ; local but very abundant.

CLAUSILIA RUGOSA, *Drap.* Abundant everywhere in Guernsey ; also in Sark.

COCHLICOPA LUBRICA, *Müll.* Common in all the islands, particularly in wet ground, at the roots of grass, at Cobo and Vazon Bay ; also in the Seigneurie grounds, Sark.

CARYCHIUM MINIMUM, *Müll.* Wet meadows to the N. and W. of Guernsey ; not uncommon, but of small size.

ANOMIA EPHIPIUM, *L.* From low-water mark to 20 fathoms, on every part of the coast ; common, but mostly young.

*Var. ACULEATA.* With the type, but not so abundant.

*Var. CYLINDRICA.* One specimen only, at Herm.

ANOMIA PATELLIFORMIS, *L.* With the last species, particularly at Bordeaux Harbour, but not nearly so common.

PECTEN PUSIO, *L.* Dredged in 20 fathoms off St. Peter's Port.

PECTEN VARIUS, *L.* Under stones at low-water mark, and to a considerable depth ; common, but usually small.

PECTEN OPERCULARIS, *L.* Most abundant in about 10 fathoms, just outside St. Peter's Port Harbour.

MYTILUS EDULIS, *L.* Not common ; it occurs generally as the variety *incurvata*.

MYTILUS BARBATUS, *L.* On the roots of Laminariæ, thrown up on all parts of the coast.

MYTILUS ADRIATICUS, *Lam.* Rather common in gravelly shell-sand, in 15-22 fathoms, off the E. of Guernsey.

MODIOLARIA DISCORS, *L.* With *Mytilus barbatus*, at the rocks and on the stalks of seaweed.

NUCULA NUCLEUS, *L.* Gregarious and exceedingly common, in shell sand (22 fathoms) off St. Peter's Port.

PECTUNCULUS GLYCYMERIS, *Linn.* Low-water mark at Herm, in gravel, and in 18 fathoms, two miles E. of Guernsey.

ARCA LACTEA, *L.* Under stones at low-water mark of spring tides, at Herm, Bordeaux Harbour, &c., dredged at a considerable depth.

MONTACUTA SUBSTRIATA, *Mont.* On the spines at the ventral end of *Spatangus*, at Herm, in sand at extreme low water mark. As a rule there were never more than two specimens on each *Spatangus*, and always exactly in the same place.

LASÆA RUBRA, *Mont.* All the coasts, very common; with *Littorina neritoides*.

*Var. PALLIDA.* Gouliot Caves, Sark.

AXINUS FLEXUOSUS, *Mont.* Valves only, in the shell sand, off Guernsey.

CARDIUM TUBERCULATUM, *L.* One specimen only, in mud in St. Peter's Port Harbour.

CARDIUM NODOSUM, *Turt.* In deep water south of Castle Cornet; not abundant.

CARDIUM EDULE, *Linn.* Herm.

CARDIUM NORVEGICUM, *Speng.* Herm, at extreme low water mark, in sand and sandy mud.

CIRCE MINIMA, *Mont.* Shelly gravel, east of Guernsey in 15-22 f., not common.

VENUS EXOLETA, *L.* In gravel at low water mark, Herm; abundant and large; also at Cobo.

VENUS FASCIATA, *Da Costa*. In sand and gravel at low water mark, Herm; common.

VENUS VERRUCOSA, *L.* Common everywhere, among rocks and small stones at low-water mark; it is eaten by the fishermen at Guernsey.

VENUS OVATA, *Penn.* Low-water mark at Herm and Bordeaux Harbour (single specimens); gregarious and very abundant in shell sand,  $\frac{3}{4}$ -mile off Fort George, in 22 f., with *Nucula nucleus*.

TAPES AUREUS, *Gmel.* Only a few specimens occurred at Herm and St. Peter's Port Harbour.

TAPES VIRGINEUS, *L.* Common everywhere, in gravel and sand; often beautifully marked.

*Var.* \*SARNIENSIS. St. Peter's Port Harbour, &c.

LUCINOPSIS UNDATA, *Penn.* One specimen only, at Cobo.

TELLINA CRASSA, *Gmel.* Dead (but fresh) shells only, at Herm; common.

TELLINA SQUALIDA, *Pult.* Herm, in sand; rather rare.

TELLINA DONACINA, *Linn.* Dead (but fresh) shells only, at Herm; not uncommon.

PSAMMOBIA TELLINELLA, *Lam.* In gravel at extreme low-water mark, Herm; not common.

PSAMMOBIA VESPERTINA, *Chem.* In gravel and sand on all the coasts; common and often very large. In a bed of gravel a few yards square at extreme low-water mark at Herm there were taken with this species: *Venus fasciata*, *V. verrucosa*, *V. exoleta*, *Pectunculus glycymeris*, *Psammobia tellinella*, and *Cardium Norvegicum*.

DONAX POLITUS, *Poli.* In pure sand at extreme low-water mark of spring tides, Herm; with *Macra glauca*, beautifully marked and rather rare.

---

\* Sarnia is the ancient name of Guernsey.



MACTRA SOLIDA, *L.* In sand, Herm, and dredged off Guernsey; common.

MACTRA GLAUCA, *Born.* In pure sand, Herm, at extremely low tide; very rare and difficult to obtain.

LUTRARIA ELLIPTICA, *Lam.* Herm, in muddy sand.

LUTRARIA OBLONGA, *Chem.* With the last.

SOLECURTUS CANDIDUS, *Ren.* One specimen only, at Herm.

SOLEN SILIQUA, *L.* Common in sand and sandy mud on all the coasts.

PANDORA INÆQUIVALVIS, *L.* L'ancrese Bay only; not common.

COCHLODESMA PRÆTENUE, *Pult.* Dead but perfect specimens, at Herm.

SAXICAVA RUGOSA, *L.* At the roots of *Laminariæ* thrown up at L'ancrese Bay.

CHITON FASCICULARIS, *L.* Deep water off Guernsey; only one or two specimens.

CHITON DISCREPANS, *Brown.* Under large stones at all parts of the coast, sometimes very large and finely marked.

CHITON CANCELLATUS, *G. B. Sowerby.* With *C. cinereus*, but much less common.

CHITON CINEREUS, *L.* Very common at low-water mark, and on a shelly bottom off Guernsey.

CHITON MARGINATUS, *Penn.* Fairly abundant everywhere.

CHITON LÆVIS, *Mont.* One specimen only, Herm.

PATELLA VULGATA, *L.* Exceedingly abundant everywhere; at Herm, very large and strong.

*Var. ELEVATA.* Sark.

*Var. PICTA.* Sark and Guernsey; not common.

*Var. INTERMEDIA.* East coast of Guernsey and Sark; the latter specimens are very fine.

*Var. DEPRESSA.* Abundant everywhere.

*HELICION PELLUCIDUM, L., var. LAEVIS.* All parts of the coast, on Laminariæ at low water.

*TECTURA VIRGINEA, Müll.* Under stones at low water all along the east coast, and at Herm; common.

*Var. CONICA.* Deep water off Guernsey.

*EMARGINULA FISSURA, L.* Low water mark at Bordeaux Harbour, and elsewhere.

*EMARGINULA ROSEA, Bell.* With the last, but more abundant and more widely distributed; very common on shells and stones in 15 f., off St. Peter's Port.

*FISSURELLA GRÆCA, L.* Low water mark at Bordeaux Harbour.

*CALYPTREA CHINENSIS, L.* Abundant from low water mark of spring tides (Cobo, St. Peter's Port Harbour, &c.) to 22 f. off Guernsey.

*HALIOTIS TUBERCULATA, L.* Abundant under large stones on all the coasts.

*TROCHUS MAGUS, L.* Very common on muddy-gravel at low water mark, at most places. Specimens from deep water are much thinner and more angulated.

*Var. ALBA.* Cobo.

*TROCHUS TUMIDUS, Mont.* Rather common in 15-22 f., off St. Peter's Port.

*TROCHUS CINERARIUS, L.* Abundant everywhere.

*TROCHUS UMBILICATUS, Mont.* Excessively abundant everywhere.

*TROCHUS LINEATUS, Da Costa.* On large rocks in all the islands, very local, but rather common. Large specimens are sometimes rather scalariform. It is sold in the market at Guernsey.

TROCHUS MONTACUTI, *Wood*. With *Trochus tumidus*, but not nearly so common.

TROCHUS STRIATUS, *L*. On *Zostera* near low-water mark ; local, but very abundant off the Glatney Esplanade ; the largest are in 6-8 f. near the mouth of St Peter's Harbour.

TROCHUS EXASPERATUS, *Penn*. On *Zostera* and Fuci, at low-water mark ; Bordeaux Harbour, Herm ; abundant.

TROCHUS ZIZYPHINUS, *L*. Common everywhere, under rock ledges and stones. A variety from deep water is, like *Trochus magus*, much thinner and more sharply cut.

PHASIANELLA PULLA, *L*. On laminariæ, (L'Ancrese Bay), under stones (Herm) ; 15-20 fathoms off St. Peter's Port ; common.

LITTORINA OBTUSATA, *L*. Everywhere, on fuci.

LITTORINA NERITOIDES, *L*. On all the rocky coasts.

LITTORINA RUDIS, *Maton*. Abundant.

*Var. SAXATILIS*. On rocks everywhere ; another common variety exhibits black bands on a white ground, while a third, found at Sark, is a bright red colour.

RISSOA STRIATULA, *Mont*. Dead specimens dredged in the shell sand.

RISSOA CANCELLATA, *Da Costa*. More common than the last.

RISSOA PARVA, *Da Costa*. Abundant everywhere on seaweeds at low water.

RISSOA COSTULATA, *Alder*. On *Zostera* at low water mark, with *Trochus striatus*.

RISSOA STRIATA, *Adams*. Under large stones between tide marks ; living with *Melampus bidentatus*, at Sark.

RISSOA CINGILLUS, *Mont*. With the last, but individually more abundant and widely distributed.

*Var. RUPESTRIS*. With the type.



- HYDROBIA ULVÆ, *Penn.*, and *var.* OCTONA. Arnold's Pond, Guernsey.
- SKENEA PLANORBIS, *Fabr.* Port du Moulin, Sark.
- SCALARIA CLATHRATULA, *Adams.* Fresh dead specimens in the shell sand east of Guernsey.
- EULIMA INTERMEDIA, *Cantr.* Muddy sand and gravel off St. Peter's Harbour; rare.
- NATICA CATENA, *Da Costa.* In sand at low water mark, Herm. The fishermen call it "silver shell" and consider it rather a rarity.
- NATICA ALDERI, *Forbes.* With the last, but more abundant.
- ADEORBIS SUBCARINATUS, *Mont.* In fine shell sand, 22 f., off Port George; not common.
- LAMELLARIA PERSPICUA, *L.* On the roots of Laminariæ thrown up at L'Ancrese Bay; also found at Bordeaux Harbour, and dredged on sea weeds in 15 f. outside St. Peter's Harbour.
- CERITHIUM RETICULATUM, *Da Costa.* At the roots of Laminaria bulbosa, Herm; low-water mark, on stones in rock-pools at Bordeaux Harbour; not common.
- CERITHIUM PERVERSUM, *L.* Fresh dead specimens in the shell sand off St. Peter's Port.
- PURPURA LAPILLUS, *L.* Very abundant everywhere; a variety approaching to the var. (3) *minor* of Jeffreys occurred on rocks at Moulin Huet.
- BUCCINUM UNDATUM, *L.* Only two living specimens: one at low-water at Cobo, the other dredged off St. Peter's.
- TRITON CUTACEUS, *L.* One dead and worn specimen from the beach at Herm.
- MUREX ERINACEUS, *L.* Abundant everywhere.
- MUREX ACICULATUS, *Lam.* On all the coasts, under stones at low-water mark; very common. The shell is generally almost hidden by a species of Melobesia.

*Var. BADIA.* In 20 f., off Fort George.

LACHESIS MINIMA, *Mont.* With the last, at Herm; rare.

TROPHON MURICATUS, *Mont.* In 15–20 f., off St. Peter's Port; not common.

NASSA RETICULATA, *L.* In sand at low-water mark, Herm only; local and not common.

NASSA INCRASSATA, *Ström.* On all the coasts, with *Murex aciculatus*; common.

DEFRANCIA GRACILIS, *Mont.* Off St. Peter's Port in 15–20 f.; rare.

DEFRANCIA LINEARIS, *Mont.* Low-water mark at Herm, with *Lachesis minima*; rare.

MARGINELLA LÆVIS, *Don.* A single specimen, dredged off St. Peter's Port.

CYPRÆA EUROPÆA, *Mont.* Low-water mark; almost everywhere, e.g., Gouliot Caves, Sark; Bordeaux Harbour, and Herm; rather common.

SCAPHANDER LIGNARIUS, *L.* Low-water mark of spring tides, in muddy sand, St. Peter's Port. This locality will confirm Dr. Landsborough's account as quoted in Jeffreys.

MELAMPUS BIDENTATUS, *Mont.* Under stones near high-water mark, west coast of Sark; local, but very abundant.

MELAMPUS MYOSOTIS, *Drap.* Extremely abundant and of large size; in a tidal ditch, Cobo.

OTINA OTIS, *Turt.* In caves and on rocks near high-water mark, at Sark; gregarious and very abundant.

*Var. CANDIDA.* With the type.

TRIOPA CLAVIGER, *Müller.* A few found at Herm.

ELYSIA VIRIDIS, *Montagu.* With *Triopa claviger*.

We have been careful, in drawing up the above list, to confine the catalogue almost entirely to shells taken in a living state—cases of divergence from this rule being invariably specified. Otherwise the list might have been considerably enlarged. At the same time, there are several other Land and Fresh-water Shells known to inhabit the islands, which we were not fortunate enough to obtain on this occasion. *Helix aculeata*, for instance, is found in Guernsey, and so are *Sphærium corneum* and *Sphærium lacustre*, while *Testacella Haliotidæ* occurs abundantly both at Guernsey and Sark.

Conspicuous by their entire absence are *Helix rupestris*, *H. sericea* and *H. rufescens*. Not a single specimen of the common shore periwinkle (*Littorina littorea*) occurred to us, though we are assured that it has been found at Guernsey. The comparative scarcity, too, of *Buccinum undatum* reminds one of the more southern latitude of these islands.

A few words may here be added with respect to *Helix pisana*. It was not till a fortnight after we discovered this shell at Vazon Bay that we learned, by the receipt of the *Q. J. C.* for August last, that we had been anticipated by Mr. G. S. Tye, and we may take this opportunity of confirming his account in most of the material points. One point of difference, however, is this, that whereas Mr. Tye had some difficulty in finding full grown specimens, we could scarcely find any that were not full grown. Perhaps, however, our searching at different seasons of the year may account for this divergence. Individual specimens, again, struck us as being extremely large, while to Mr. Tye they seemed smaller than usual.

It of course occurred to us at once that so conspicuous a shell as *Helix pisana* could not possibly be indigenous on an island which had been the home of so distinguished a conchologist as Dr. Lukis. Moreover—and here our conclusions differed entirely from those of Mr. Rimmer given in the *Q. J. C.* last November—it seemed probable that the introduction was *not* of very recent date, first, from the extent of ground (at least half-a-mile) over which the shell was found; secondly, from our finding fragments of old and worn shells under large and heavy stones, which evidently had not been moved for some time. We are aware that the locality of Mr. Rimmer's find was the Vale Castle, while ours was Vazon Bay, but still, as will afterwards appear, the same reasoning applies to each. Accordingly we wrote to Dr. Lukis' daughter, Mrs. Collings, of Sark, herself a great authority on all matters of natural history, to ask if she could give us any information as to the introduction of this snail. She replied as follows:—" *Helix pisana* "was introduced in 1860, from Jersey. My brother was staying



"there for some time, and brought over a number which he divided into little colonies: one at Vazon Bay, another at the Vale Castle, and about a dozen and a half which he sent me to try in Sark. I put them on the right bank, going down to the Port du Moulin, and for a few years after occasionally found a shell or portions of shell near a stone, where a thrush or black-bird had had a meal. Thus I fear they have all vanished, for it is now some years since I have seen any. . . . My brother died in 1863."

This at once settles the question, for it is obviously unnecessary to assume a second introduction since 1873, simply because Mr. Rimmer did not find the shell at Vazon Bay in that year. No doubt its range was much less extensive then than it is now. It is noticeable too that the capabilities of the new colonies for sustaining life varied directly with the exposed nature of their situation. That at Sark, on rather high and rocky ground, probably never took root at all; that at the Vale Castle, in spite of its north-easterly outlook, was on a far more congenial soil, and consequently survived until 1873 or later; while that at Vazon, planted on low lying ground, and facing the N.W. has lived and flourished, although doubtless, like Dr. Jeffreys' importations to Swansea, after the parent stock had died out, the new brood took some time to establish itself permanently.

It only remains to inform Conchologists, in case they are at any future time perplexed by finding dead shells of *Helix pomatia* at Guernsey, that Dr. Lukis tried the same experiment with that shell as he did with *Helix pisana*, but apparently without the same success.

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#### HELIX PISANA, MULLER.

By G. SHERRIFF TYE.

Mr. Richard Rimmer's courteous observations upon my notes on this mollusk were read by me with much interest, and I accord to him with pleasure all the credit belonging to him as being the first to observe this species in Guernsey, as I, like him, set the truth before any personal vanity.

No doubt Mr. Rimmer's surmise is correct as to the introduction of *pisana* to Vazon Bay, but it must have been soon after his visit, as many of the shells would complete their growth in the season in which I saw them, and according to my own observations, it is usually in the third year of their growth that our larger mollusks finish their shells.

It would be well if the person who introduces an animal or plant into a new locality would record the fact in one of our natural history periodicals, as it would greatly help those of us who wish to arrive at a knowledge of their natural distribution.

Mr. Rimmer's explanation of the probable cause of the congregation of adult shells is doubtless right.

I do not think aspect would prevent the successful establishment of *H. pisana* on our coast, if the parents were introduced in early summer before breeding commenced. Its Irish habitat is an *Eastern* one.

*H. fomatia* and *H. cantiana* find no difficulty in accommodating themselves to Yorkshire.

It would be interesting to ascertain if it could be successfully introduced into some *inland* station in this country.

The discovery of Dr. Gwyn Jeffreys' colony at Swansea is noteworthy. In speaking of it Mr. Rimmer says the variety *alba* seemed to be the most plentiful, does he not mean the creamy white variety? not *alba*, which is, as I pointed out, a *snowy opaque white* with (Mr. Shuttleworth says sometimes without) translucent markings.

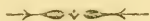
Dec., 1877.

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OCCURRENCE OF *GADINIA RETICULATA*, Sow, IN  
SOUTH-EASTERN POLYNESIA.

By ANDREW GARRETT.

Having collected a number of examples of a species of *Gaainia*, in the Society and Paumotu Islands, the first indication of the genus in Polynesia, I distributed them among my correspondents, labelled *G. varia*, Nobis, MS. Having received a fine series of Sowerby's *reticulata*, collected in California, I cannot detect after a critical comparison the slightest difference in the specimens from the two localities, they agreeing precisely in form, texture, color and sculpture. Our shells were found adhering to the under side of huge blocks of dead coral on the outer reefs, where they were continually submerged except at extreme low water at the new and full moon.

OCCURRENCE OF *CREPIDULA ACULEATA*, GMEL.,  
IN THE MARQUESAS ISLANDS.

By ANDREW GARRETT.

About a year ago, while exploring the Marquesas, I remarked this cosmopolitan species cast up on the beaches in great numbers, though seldom in good condition. It is probably a denizen of deep water, as I searched in vain for living examples.

It also occurs at the Sandwich Islands, where I found a few beach-worn specimens. It is recorded from New Zealand, Australia, India, Mauritius, W. Indies, Japan, Panama and California. I have had no opportunity of comparing our shells with West Coast examples.

Having lately received perfect specimens of *Hipponyx barbatus*, L., and *H. antiquatus*, L., from the coast of California, I failed to discover even a single varietal character to separate them from Polynesian examples. The former species is not uncommon in all the Eastern Polynesian Islands, and *antiquatus*

occurs at all the groups east and west, though of smaller size than the west coast shells. It is also said to be found at Panama, Peru, W. Indies and Senegal. *Hipponyx foliaceus*, "Quoy et Gaimard, Zool. Voy. Astrolabe, Pl. 72, fig. 41—45," is probably the same, it was obtained at Guam, where I found all the mollusca of the Polynesian type.

July, 1877.

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### ALLIANCE OF THE GENERA *STREPTAXIS* AND *ENNEA*.

By J. S. GIBBONS, M.B.

In Paetel's Catalogue *Streptaxis* is placed in a group with *Ennea*, *Streptostele* and *Celiaxis*. Mr. Bland, from a consideration of their teeth, &c., also places the two first together; an arrangement now adopted by most conchologists.

It is difficult to understand on what grounds *Streptaxis* could have been linked with *Helix* and *Ennea* with *Pupa*. It must certainly have been done in ignorance of the animals.

The two genera (*Streptaxis* and *Ennea*) resemble each other most closely in shell, animal, and habits.

In both, the shell is of the same semi-transparent, pearly lustre, allowing the retracted animal to be clearly distinguished; the shape, too, of the shells is not dissimilar, except that in *Streptaxis* the whorls are not symmetrical. The animal in both genera is singularly alike and very distinct from that of all others; alike in shape, alike in having the tentacles a beautiful deep vermilion color, and in having the foot a rich chrome yellow. In both the animal is quick, irritable, timid, and all the species love to hide themselves under dead leaves and decaying rubbish under trees and at the verge of forests. No species of either genus ever suspends itself by dried mucus or attaches the aperture of its shell as do *Pupas* and many *Helices*.



NOTES ON THE GENUS *PARTULA*.

By C. P. GLOYNE.

Having in my collection a rather considerable number of species of *Partula*, received principally from Mr. Bland, of New York (including typical examples of many of Pease's species), and from the Museum Godeffroy, I have thought it desirable to examine them with a view to ascertain which of the so-called species ought to be allowed to stand, and which of them are, on the other hand, only synonyms or varieties. I suspected that many would be in the latter category, Pease having described new species in great profusion, so that, including those of which he had not seen the descriptions, Dr. Pfeiffer (whose loss all conchologists must deeply regret) enumerates about 140 different species in the last volume of his monograph.

As will be seen below, this expectation has been justified, and probably I might have been able still further to reduce the number if, instead of rarely possessing more than three specimens of each so-called species, and often only one or two, I had had extensive suites at my disposal so as to show transitions.

The following are my remarks: *Partula sinistrorsa*, Pse., is synonym of *P. amabilis*, Pfr., which latter hardly differs from *rubescens*, Rv., except in color.

*P. crassa*, Pse., is very near but has a denticle.

These species form a natural group with *P. otaheitana*.

*P. attenuata*, Pse., 1871 (Mus. Godeffroy) = *P. gracilis*, Pse., 1866.

*P. alternata*, Pse., is synonym of *P. vexillum*, Pse.; the only difference is in the markings, which are very variable.

*P. vexillum*, Pse., *bilineata*, Pse., and *trilineata*, Pse., are very near, and probably will eventually be united by intermediate gradations.

*P. simplaria*, Morelet, is synonym of *P. varia*, Brod.

*P. cognata*, Pse., is intermediate between *varia* and *rosea*, Brod. Probably the three will eventually be united.

*P. lignaria*, Pse., synonym of *P. affinis*, Pse.

*P. Huaheinensis*, Garrett = *P. lugubris*, Pse., and *P. pulchra*, Pse., is only var. *minor* of the same.

*P. globosa*, Pse. = *P. Hebe*, Pfr.

*P. approximata*, Pse., MS. = *imperfurata*, Pse.

*P. rustica*, Pse. = *P. crassilabris*, Pse.

*P. abbreviata*, Mousson, seems the same as *solidula*, Rv.

*P. compacta*, Pse. = *callifera*, Pfr., according to a specimen identified by Mr. Sowerby at the British Museum.

*P. gracilis*, Pse. = *attenuata*, Pse.

*P. simulans*, Pse. = *striolata*, Pse.

*P. subgonochila*, Mous. I cannot see the difference between this and *P. gonochila*, Pfr.

*P. terrestris*, *variabilis* and *protea*, Pse., seem distinct and belong to the same group as the well-known *P. faba*, Martyn.

There are many species of which I have never seen specimens, and I doubt not that amongst them further *rapprochements* might be made.

C. P. G.

Dec. 12th, 1877.

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ON CERTAIN SPECIES OF *LITTORINA*.

By J. S. GIBBONS, M.B.

In tropical and subtropical regions certain species of *Littorina* are confined to water more or less brackish, being incapable of living in pure salt water.

I have met with three of these and in each case they have been distinguished from the truly marine species by the extreme (comparative) thinness of their shells and by their coloring being richer and more varied; they are also usually more elaborately marked. They are to be met with under three different conditions, viz., in harbours and bays where the water is salt with but a slight admixture of fresh water; in mangrove swamps where salt and fresh water mix in pretty equal volume; and lastly on dry land, but near a marsh or the dry bed of one.

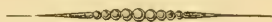
*L. intermedia*, Rve., a widely-diffused E. African shell, attaches itself by a thin pellicle of dried mucus to grass growing by the margin of slightly brackish marshes near the coast, resembling in its mode of suspension the Old World *Cyclostomas*. I have found it in vast numbers in situations where, during the greater part of the year, it is exposed to the full glare of an almost vertical sun, its only source of moisture being a slight dew at night time. The W. Indian *L. angulifera*, Link, and a beautifully colored E. African species (*L. carinifera*, Juke?) are found in mangrove swamps, &c., they are however less independent of salt water than the last.

Notwithstanding that the true marine species are thicker than those found in brackish water, the latter become more solid as the water they inhabit becomes less salt. This is curious and the reverse of what one would expect. It is, however, undoubtedly the case, as I have often satisfied myself. *L. angulifera*, e.g., is unusually solid and heavy at Puerto Plata (S. Domingo) among

mangroves, where the water is in a great measure fresh, while at Havannah and Colon, when it lives on stakes in water but slightly brackish, it is thinner and smaller and also darker colored. Again the specimens of *L. intermedia* on stakes at the mouth of the Lorenzo Marques River, Delagoa Bay, are much smaller, darker, and more fragile than those living on grass a few hundred yards away.

I have sometimes thought the explanation of this might be that those living furthest from the influence of the sea get their salt water only at high spring tides, and are therefore exposed to to greater physical changes than the others dwelling by water in direct communication with the sea. And yet if such were the case, one would expect a coarseness and irregularity in the growth of the former which does not occur. I must therefore be content with recording the results of observation.

Jan. 4th, 1878.



ABNORMAL FORM OF  
*CYLINDRELLA RAVENI*, BLAND.

By J. S. GIBBONS, M.B.

Among some specimens of the above species collected on the Island of Curaçao, I found a very curious monstrosity—the shell (empty when I picked it up) possessing two apertures placed almost back to back—a kind of Molluscan “Two-headed Nightingale.”

Originally the shell was undoubtedly an ordinary form, but for some reason or other it has formed a second aperture, about one-third of a volution nearer the apex, the canal of the portion of whorl beyond being obliterated by the columellar side of the new orifice.



Probably a hole was accidentally broken in the body-whorl, and the animal, instead of closing it, converted it into a new aperture, thereby somewhat shortening the inhabited part of its shell.

Jan. 4th, 1878.



## DESCRIPTION OF TWO NEW *GASTEROPODS*.

By WILLIAM DOHERTY.

University of Cincinnati, U.S.A.



### **Somatogyrus trothis**, *Doherty*. (Plate IV., fig. 1.)

SHELL globosely ovate, rather heavy, yellowish-green; *spire* conical, elevated for the genus, nearly as long as the aperture; *suture* deeply impressed; *whorls* four, rapidly increasing, with fine lines of growth, last year's growth somewhat dilated at its junction with that of the previous year; last whorl constricted near peristome, forming an obliquely-impressed scar above, and at the base below the closed umbilicus, a deep impression which sometimes indents the peristome; *aperture*, broadly ovate, obtusely rounded below; *peristome* somewhat shouldered above, slightly angulated below at its union with the rounded columella.

Length 5 mill., diameter 4 mill.

Found on stones in the Ohio River, above the mouth of the Five-mile Creek, Campbell County, Kentucky; also on leaves in Five-mile Creek.

Specimens are in the cabinet of the Philadelphia Academy of Sciences, and in those of Prof. A. G. Wetherby and Dr. James Lewis, as well as in my own.



**Cionella (Zua) Morseana, Doherty.** (Plate IV., fig. 2.)

SHELL cylindrical, slender, thin, transparent, highly polished, reddish-brown, with slight, irregular lines of growth; *whorls*  $5\frac{1}{2}$ , flattened, the last nearly one-third the length; *suture* little impressed; *apex* very obtuse; *aperture* oblong-ovate, widest near base; *peristome* scarcely thickened, reddish; *umbilicus* closed; *columella* perpendicular, meeting base of peristome at something less than a right angle.

*Foot* white, almost translucent; *head* grayish, with short tentacles.

Length 7 mill., sometimes more; diam. 2 mill. Aperture 2 mill. long.

Found in beds of leaves in woods, Kenton County, Kentucky, and Hamilton County, Ohio; solitary, rare.

It may be viviparous. In the winter it closes its shell with an opaque, white epiphragm, like that of *Helix profunda* or *H. pomatia*.

Differs in many respects from *C. subcylindrica*, L. The shell is longer, more slender, more cylindrical, the whorls flatter, the columella straighter, the apex and base more obtuse, the foot lighter, the shell darker and less opaque.

I take the liberty of naming this species after the distinguished American naturalist, Prof. Edward Morse.

Jan. 5th, 1878.



DESCRIPTION OF A NEW SPECIES OF *PUPA*.

By CHAS. R. JUDGE.

Read before the Cincinnati Society of Natural History, Jan. 2nd, 1877.



***Pupa Cincinnatiensis*, nov. sp.**

SHELL delicate, minute, shining, translucent, nearly colorless, smooth, very faintly marked by the striæ of growth and by numerous microscopic wrinkles; *apex* obtuse; *whorls*  $4\frac{1}{2}$  to 5, convex, separated by a deeply impressed suture, *aperture* semi-oval, having in the right hand portion of the peristome a slight fold, slightly contracting the aperture at the margin; *peristome* simple, heavily thickened near the margin, the callus extending over the parietal wall; aperture contracted by five prominent denticles, seated on the callus, one prominent on the parietal wall, two on the columella, the lower being the smaller of the two, and two on the other portion of the peristome, more deeply seated in the throat, and occasionally one or two very minute rudiments on the peristome.

Length 1.56 mill., diam. 84 mill.

This shell is found on both sides of the Ohio River, near Cincinnati, stationed in deep beds of damp leaves, in woods,

somewhat close to the ground. It may most easily be mistaken for *Pupa pentodon*, but is much smaller and proportionably broader and its aperture is obstructed by a less number of denticles than are usually seen in specimens of the latter species.

There are specimens in my own cabinet and in the collections of Jas. Lewis, M.D., Mohawk, N.Y., and of the Cincinnati Soc. of Nat. Hist.



#### REMARKS ON A DENTATE VARIETY OF *CONULUS* *FULVUS*, DRAP.

By WILLIAM DOHERTY.

University of Cincinnati, U.S.A.

The eastern part of the Union is the peculiar habitat of gastrodont or internally dentate species of *Zonites*, and in a gastrodont variety of *Zonites* (*Conulus*) *fulvus*, Drap., recently found at several points near Cincinnati, we have an example of a widely distributed species, spread over all the northern parts of Europe, Asia, and America, assimilating in one portion of its range to the forms prevalent there.

The "teeth" are placed as in *Z. multidentatus* Binn., and vary from one slight, shapeless roughening of the inner surface of the outer whorl, to four large, elongate teeth, radiating from the umbilicus like the spokes of a chariot-wheel. As is usual with gastrodont snails, these teeth attain their greatest development in the half-grown shell. From the chief locality of this variety I obtained 39 young *fulvi*, of which 18, or nearly half, were more or less dentate, while of 17 adult *fulvi* from the same place, one had in the next to the last whorl a single tooth much flattened and eroded, while all the others were toothless. Hence I suppose that the teeth are gradually worn away by the motions of the



animal. In *Z. multidentatus*, rows of teeth appear at an early age, and as often as the shell grows a quarter of a whorl, a new row is produced while the earliest is worn away. So the shell grows to maturity, always having three or four rows of denticles. In this variety of *fulvus*, however, this process seems to cease long before the shell reaches maturity, and the last whorl is thus left without teeth.

The cause of these denticles can hardly be decided, but one may guess. I found a small, white, tender grub, which lives in beds of leaves and preys on small snails like *Zonites arboreus* Say., by entering the shell at its mouth and devouring the animal. The denticles may have been evolved as a protection against foes of this description, either by obstructing their entrance, or perhaps by wounding their bodies, which seems possible in the case of *Z. multidentatus* and *significans* Bland, and *Strobila labyrinthica* Say. The complicated lip apparatus of some of our *Helices* (as *H. auriculata* Say.) and *Pupas* (as *P. contracta* Say.) possessed only by the mature shells seems likewise a defence against external enemies. In the gastrodont snails the growth of the shell seems slow, and the mature state short, as shown by the greater frequency of young shells. Indeed, this and the fact that specimens of *Z. fulvus* in my possession laid eggs when wanting a whole whorl of maturity, leads one to believe that the last whorl, like white hair in man, is attained only in old age, and that teeth or folds at the completed peristome would thus protect comparatively few individuals. Under these circumstances it is not strange that internal denticles, present at all stages of growth, should have been evolved for the protection of this curious variety, which offers a fair example of a species in the course of development but not yet crystallized to a firm type, by the extinction of intermediate forms.

Jan. 20th, 1878.

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DESCRIPTIONS OF NEW SPECIES OF *ACHATINA*.

By EDGAR A. SMITH, F.Z.S.

Zoological Department, British Museum.

The following interesting species form part of the National collection, which contains a very fine series of *Achatina*, comprising nearly all the described large African forms, with a very few exceptions.

*Achatina albopicta*.

*Testa crassiuscula, acuminata ovata, saturate fusca strigis maculisque albis diverse picta; spira acuminata apice pallido, sub-obtuso; anfractus  $7\frac{1}{2}$  mediocriter convexi, ubique granulati, granulis oblongis; sutura leviter obliqua anguste albo marginata; apertura elongate ovalis superne acuminata, perpendicularis, longitudinis testæ  $\frac{1}{2}$  æquans, intus callo albo induta; columella aliquanto arcuata, basi breviter truncata, callo albo usque ad marginem peristomatis exteriorem continuo amicta. Long. 84 mill.; Diam. 37; apert. long. 43; diam. 22.*

*Hab.* ? Probably African.

Shell rather solid and heavy, ovate, acuminate above or in the direction of the apex. The colors are about equally divided, and consequently the ground color may be termed either white or dark-brown; in the former case it would be streaked and blotched with brown and in the latter with white. The streaking and blotching are very irregular, but decidedly display a tendency for an oblique direction parallel with the lines of growth. Whorls  $7\frac{1}{2}$ , rather convex, and ornamented over the entire surface with narrow, elongate granules, which like the coloring also follow the direction of the incremental lines or striæ. The last whorl is not very ventricose, but extends or is produced some distance below the

truncated end of the columella. The aperture is about as long as half the entire length of the shell, of an irregular, elongate, oval form, acute superiorly, very white within, being covered with a thick, shelly deposit of that hue. The columella is only slightly arched, also clothed with a white callosity extending upwards over the whorl as far as the extremity of the outer lip. Its truncation is rather abrupt and narrow.

The nearest ally of this species appears to be *A. Kraussi*, Rve. It differs from it, however, in having a more elongate and acuminate spire, the more varied and irregular character of the blotching and the strongly marked granular sculpture.

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### *Achatina zebroides.*

*Testa subsolida, ovata, alba, strigis angustis obliquis numerosis irregularibus rufo-fuscis ornata; spira conica apice albido obtuso; aufractus 7 convexi, superiores oblique striati et granulati, tres ultimi minus distincte granulati, ultimus sublævigatus; apertura ovata, superne acuminata, longit. totius  $\frac{1}{2}$  paulo minor, intus alba, hic illic strigis rufo-fuscis aliquanto pellucetibus; columella leviter arcuata alba, callosa, basi abrupte truncata; perist. simplex.*

*Long. 46 mill.; diam. 23. Apertura 23 long., 12½ lat.*

*Hab.* ? Africa probably.

Shell rather solid and heavy for its size, ovate, white, varied with numerous close-set and slightly oblique reddish-brown stripes, which are rather regular and only slightly undulating; spire obtusely conical, white towards the apex which is rather rounded and not acute; suture but slightly oblique, crenulated; whorls 7 quite convex, the third and fourth from the nucleus ornamented with a close granulation, the granules being elongate; on the two succeeding whorls they are less conspicuous, and on the last

become almost obsolete ; aperture small, not equalling half the entire length of the shell, within coated with a white opaque enamel and streaked here and there rather indistinctly by the exterior brownish stripes ; columella coated with a thin white callosity, which extends as far as the upper extremity of the outer lip ; it is a little arcuated and rather abruptly but obliquely truncated at the basal end ; peristome simple, regularly curved, and thin.

This species, of which I have seen only a single specimen, agrees in form very fairly with *A. porphyrostoma*, Shuttleworth, with the exception of the spire being a little less obtuse, and in coloration it reminds one very much of *A. Zebra*.

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### Achatina dimidiata.

*Testa ovata, tenuis, levis, superne fusca parum nitida, inferne virescenti-flavescens polita ; spira conica, apice obtuso ; anfractus 6½-7, superiores convexiusculi lincis incrementi aliisque spirali-bus subrugose granulati, sutura crenulata sejuncti ; ultimus magnus, ventricosus, superioribus lævior, supra medium fuscescens, infra abrupte virescenti-flavus et lævigatus ; apertura verticalis, subovalis, supra acuminata, intus callo cæruleo-albo induta ; columella subperpendicularis parum externe arcuata, roseo pallidissime tincta ; peristoma tenue simplex, marginibus callo tenuissimo junctis.*

*Long. 80 mill. ; diam. 39. Apert. long. 45, diam. 26.*

Shell thin, light, divided into two differently colored portions, the upper section above the middle of the body-whorl being of a uniform dull-brown color and displaying very little gloss on the surface, the lower division is polished and greenish-yellow or olive, streaked here and there longitudinally with a darker tint. Whorls about seven in number, the upper ones moderately convex, and sculptured with somewhat coarse granulation, which is formed by



the strongly marked oblique lines of growth being intersected by less pronounced spiral striæ; this granulous sculpture becomes almost obsolete on the upper half of the last volution and vanishes entirely below the middle. The aperture is large and occupies more than half the entire length of the shell; it is oval in form, acuminated above, and coated within with a bluish-white callous deposit; columella nearly perpendicular, curved very slightly in an outward direction and tinted with a very pale shade of livid pink. It is abruptly truncated below and invested with a thin callosity, which extends over the oral side of the whorl and joins the thin peritreme above.

*Hab.* Eastern Slope of the Drakensberg Mountains, at Lydenburg Gold Fields, Transvaal, South Africa.

The species is very readily distinguishable by the strongly contrasting colors of the upper and lower portions. This division of the shell by color into halves suggested the specific name which I have ascribed to it.

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### *Achatina bisculpta.*

*Testa tenuis, ovata, superne acuminata, sub epidermide flavo-olivacea sordide albida vel cæruleo-alba, strigis angustis paulo undulatis rufo-fuscis varigata; spira subacute conica, apice pallido, parvo, obtuso; sutura profunda, vix obliqua; anfractus 7½ perconvexi, conferte granulati, ultimus infra medium granulis minoribus ornata; apertura parva irregulariter ovalis, longit. totius ½ paulo superans, intus pallide cærulescens, strigis rufo-fuscis pellucentibus; columella in medio arcuata, inferne tortuosa, basi abrupte truncata, albescens.*

*Long.* 46 mill.; *diam.* 25. *Apertura* 25 longa., 13½ lata.

*Hab.* South Africa.

Shell light and thin, ovate, acuminate above, clothed with a thin, yellowish olive epidermis, beneath which it is dirty or bluish-white, striped a little obliquely with narrow and slightly wavy reddish-brown streaks; suture almost horizontal, rather deep owing to the rotundity of the volutions; whorls  $7\frac{1}{2}$  very convex, the four apical ones pale without stripes, all granulated, the granules on upper ones which constitute the spire rather coarse in close spiral series, the upper part of the body-whorl similarly granulated, the lower portion much more finely, the line of demarcation between the two kinds of granulation sudden and distinct. The mouth rather small, very irregularly oval, occupying a little more than half the entire length of the shell, dirty-white or bluish-white within, displaying the exterior reddish-brown striping; columella arched in the middle, tortuous below and abruptly truncated at the base, of a dirty white color and covered with a very thin callous, which extends over the whorl and joins the lip at its upper extremity.

This interesting species must not be mistaken for the young of *A. Welwitschi* Morelet, to which it bears some resemblance.

There are two specimens of it and apparently not quite adult. I imagine, however, that they would not grow much larger but no doubt would become somewhat more solid.

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### Achatina simplex.

*Testa ovata, tenuis, pallide olivaceo-fusca, nitida; spira conica apice obtuso; anfractus  $6\frac{1}{2}$  convexi superne granulati inferne sublevigati, ultimus infra medium levigatus; sutura rix obliqua; apertura irregulariter ovata superne acuminata longit. totius  $\frac{1}{2}$  subæquans, intus cærulescenti albiâ; columella contorta in medio arcuata, basi oblique breviterque truncata, callo tenui superne labro juncto induta.*

*Exemp. max.* Long. 50 mill.; diam. 26. *Apertura* 25 long. 16 lat.

*Exem. alterum.* Long. 39 mill.; diam. 22. *Apertura* 21 long. 12 lat.

*Hab.* Port Natal (Sutherland).

Shell rather thin, light ovate, clothed with shining olive-brownish thin epidermis, here and there streaked in an oblique direction with narrow stripes or lines of a deeper shade of the same colour; spire obtusely conical, terminated by a rounded, blunt apex; whorls  $6\frac{1}{2}$  gradually increasing, sculptured by oblique lines of growth, which are granulated on the upper portion of the whorls; the granules are oblong and vanish almost entirely on the lower third part of the upper whorls, and are only traceable for a short distance below the suture on the body-whorl. The extreme upper edge of the whorl bordering the suture is pale and crenulated; aperture irregularly ovate, acuminate above and produced only moderately below the truncature of the columella, equalling about half the entire length of the shell, somewhat iridescent, within bluish or vinous white; peristome thin, simple, everywhere arcuate; columella well arched in the middle and tortuous beneath, oblique but narrowly truncate at the base, covered with a whitish enamel faintly tinged with pink, which extends in the form of a very thin layer over the whorl to the termination of the outer lip.

This species is very distinct from any other with which I am acquainted. It is remarkable for the simplicity of its coloring, the rotundity of the whorls, and its glossy surface. Several specimens were presented to the British Museum in 1860, by Dr. P. Sutherland, by whom they were collected at Port Natal whilst surveying that part of South Africa.

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#### **Achatina Transvaalensis.**

*Testa oblonga, tenuissima, pallide virenti-straminea; spira obtuse conica apice rotundato; anfractus  $7\frac{1}{2}$  perconvexi, sutura crenulata fere horizontali discreti, inconspicue oblongo-granulati, lineis*

*incrementi obliquis sculpti, ultimus infra medium haud granulatus ; apertura parva, longit. totius  $\frac{1}{2}$  paulo superans, intus albo diaphana ; columella arcuatissima et torta, ad basin abrupte truncate albo marginata ; perist. tenuissimum.*

*Long. 38 mill. ; diam. 17. Apertura 17 longa., 9 lata.*

*Hab.* Eastern Slope of the Drakensberg Mountains, at Lydenburg Gold Fields, Transvaal, South Africa.

Shell oblong, thin, pale greenish-straw color ; spire bluntly conical, terminated by an obtuse apex ; whorls  $7\frac{1}{2}$ , very convex, separated by a deep and almost horizontal suture, crenulated just beneath it and bordered by a very thin, yellowish line ; the surface is everywhere (with the exception of the lower half of the body-whorl which is smooth) covered with oblong granules, which are not very observable to the naked eye ; the lines of growth are distinct and a little obliquely inclined ; the aperture is small, being less in length than half that of the entire shell and of a diaphanous whitish color within ; columella very much arched in the middle, tortuous beneath, abruptly truncated at the base, and the edge coated with a thin, white enamel.

This species in texture and color resembles in a degree *A. natalensis* Pfeiffer, but its form is very different and the granulation rather finer. In shape and the proportion of the whorls it approximates *A. polychroa* of Morelet, but the volutions are much more convex and the columella is not straight.

Two specimens of this species and two of *A. dimidiata* have been liberally presented to the British Museum by Mr. G. B. Sowerby, jun.

Jan. 20th, 1878.

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